Electrical Safety and Generators

Preventing Electrocutions Associated with Generators Plugged Into Household Circuits

Homeowners should not attempt to install any generator that requires hard-wiring into an existing electrical circuit. Have a trained, qualified electrician hard-wire any generator into a household circuit.

When power lines are down, residents can restore energy to their homes by using another power source such as a portable generator. If the generator is plugged into a household circuit, or if it is improperly sized, installed, or operated, the electrical current could reverse, go back through the circuit to the power grid, and then increase in voltage. If a worker attempts to repair power lines when this happens, the worker could be electrocuted. This problem is called **backfeed** or feedback in the electrical energy in power lines. **Backfeed can seriously injure or kill repair workers or people in neighboring buildings.** Following the safety guidelines below can reduce this risk.

Once the generator has been installed by a qualified electrician, be sure that the main circuit breaker is OFF **and locked out prior to starting the generator. This will help protect utility workers from possible electrocution.**

Effects of Backfeed

The problem of backfeed in electrical energy is a constant risk for electrical energy workers. Electrocutions are the fifth leading cause of all reported occupational deaths.

Safeguards against Backfeed

- **Treat all power lines as "hot"** unless the lines have been de-energized and grounded. Because of the possibility of a feedback circuit, the worker should ground all lines on both sides of the work area unless he/she is wearing the proper personal protective equipment including eye/face protection and National Electric Code (NEC) rated and approved gloves and sleeves.
- **Prevent electrocutions by conducting standard tests** to decide if there is high voltage in the power lines. Low voltage includes voltages from 50 to 600 volts. High voltage includes voltages of 601 volts to 230,000. Extra high voltage is any voltage over 230,000 volts.
    - **Use low voltage testing equipment** such as a glowing neon light or light-emitting diode type equipment to determine whether there is low voltage present. High voltage tests may not identify lower voltage levels. Lower voltages are also deadly.
- **Power lines should not be repaired or otherwise accessed without adequate personal protective equipment**, including eye/face protection and NEC rated and approved gloves and sleeves.

Other Generator Hazards

Generator use is also a major cause of carbon monoxide (CO) poisoning. Generators should only be used in well ventilated areas. To learn more about preventing CO poisoning, see http://www.bt.cdc.gov/disasters/carbonmonoxide.asp.

For more information, visit www.bt.cdc.gov/disasters,
or call CDC at 800-CDC-INFO (English and Spanish) or 888-232-6348 (TTY).

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